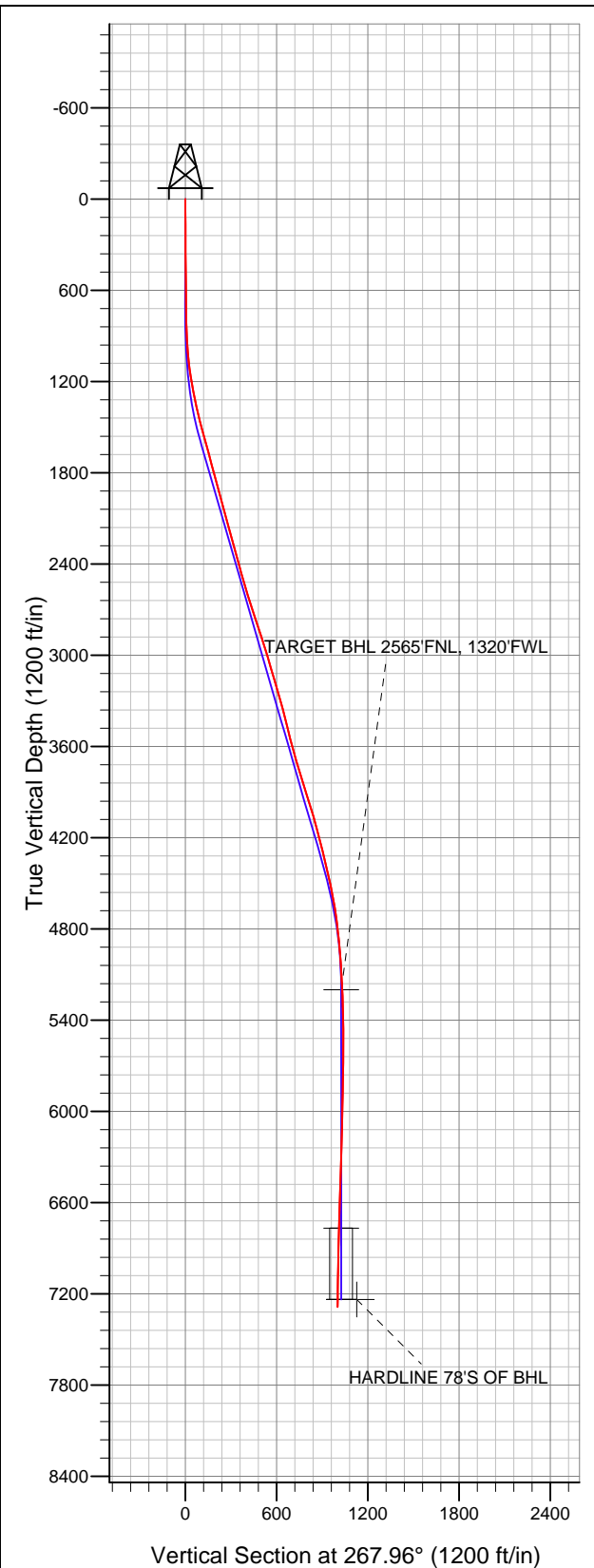


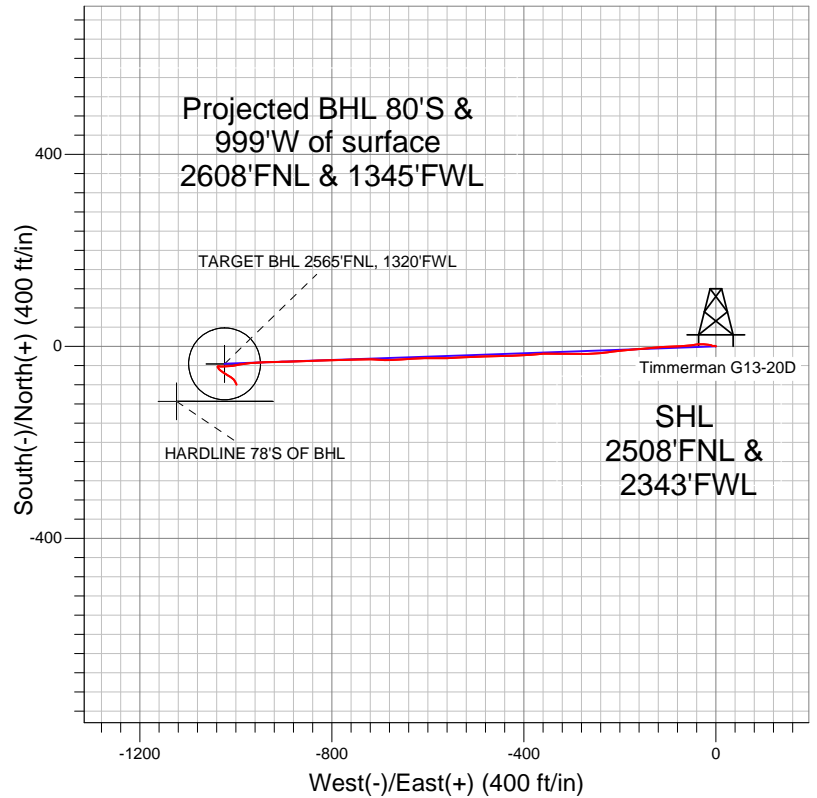
Well Name: Timmerman G13-20D

Surface Location: Timmerman G13-20D Pad Sec.13-T4N-R65W
 North American Datum 1983 US State Plane 1983Colorado Northern Zone
 Ground Elevation: 4775.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357999.90	3247511.59	40.312710	-104.612430	
		Original Well Elev	WELL @ 4788.0ft (Original Well Elev)			



NOBLE ENERGY INC WELD COUNTY CO



- LEGEND
- Wellbore #1
 - Timmerman G13-20D, Wellbore #1, Noble Timmerman G13-20D Plan #1 (4-09-12) R V0
 - Survey #1

Final Survey Plot

Projected Final Survey -
 7421'MD & 7287'TVD @ 1001'VS
 1.60 deg Inc 153.20 deg AZ

Project: SEC.13-T4N-R65W
 Site: Timmerman G13-20D Pad Sec.13-T4N-R65W
 Well: Timmerman G13-20D
 Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.13-T4N-R65W

Timmerman G13-20D Pad Sec.13-T4N-R65W

Timmerman G13-20D

Wellbore #1

Survey: Survey #1

Standard Survey Report

16 April, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Timmerman G13-20D
Project:	SEC.13-T4N-R65W	TVD Reference:	WELL @ 4788.0ft (Original Well Elev)
Site:	Timmerman G13-20D Pad Sec.13-T4N-R65W	MD Reference:	WELL @ 4788.0ft (Original Well Elev)
Well:	Timmerman G13-20D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.13-T4N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Timmerman G13-20D Pad Sec.13-T4N-R65W				
Site Position:		Northing:	1,357,999.70ft	Latitude:	40.312710
From:	Lat/Long	Easting:	3,247,489.28ft	Longitude:	-104.612510
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.57 °

Well	Timmerman G13-20D					
Well Position	+N-S	0.0 ft	Northing:	1,357,999.90 ft	Latitude:	40.312710
	+E-W	0.0 ft	Easting:	3,247,511.59 ft	Longitude:	-104.612430
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,775.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/9/2012	8.66	66.98	53,016

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	5,200.0	0.0	0.0	267.96	

Survey Program	Date	4/16/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
77.0	7,421.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
77.0	0.20	282.50	77.0	0.0	-0.1	0.1	0.26	0.26	0.00	
169.0	0.40	317.00	169.0	0.3	-0.5	0.5	0.28	0.22	37.50	
261.0	0.30	265.80	261.0	0.5	-1.0	0.9	0.34	-0.11	-55.65	
354.0	0.40	316.80	354.0	0.7	-1.4	1.4	0.34	0.11	54.84	
446.0	0.40	264.10	446.0	0.9	-2.0	1.9	0.39	0.00	-57.28	
537.0	0.30	265.80	537.0	0.9	-2.5	2.5	0.11	-0.11	1.87	
609.0	0.20	312.80	609.0	1.0	-2.8	2.8	0.30	-0.14	65.28	
690.0	1.10	262.70	690.0	1.0	-3.7	3.6	1.21	1.11	-61.85	
749.0	1.40	270.10	749.0	0.9	-5.0	4.9	0.58	0.51	12.54	
869.0	1.80	294.10	868.9	1.7	-8.1	8.1	0.64	0.33	20.00	
951.0	3.10	282.70	950.8	2.7	-11.5	11.4	1.69	1.59	-13.90	
1,032.0	5.50	277.30	1,031.6	3.6	-17.5	17.3	3.00	2.96	-6.67	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Timmerman G13-20D
Project:	SEC.13-T4N-R65W	TVD Reference:	WELL @ 4788.0ft (Original Well Elev)
Site:	Timmerman G13-20D Pad Sec.13-T4N-R65W	MD Reference:	WELL @ 4788.0ft (Original Well Elev)
Well:	Timmerman G13-20D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,114.0	7.80	272.50	1,113.1	4.4	-26.9	26.8	2.88	2.80	-5.85
1,196.0	9.60	263.20	1,194.1	3.8	-39.3	39.1	2.78	2.20	-11.34
1,277.0	10.70	262.70	1,273.8	2.1	-53.4	53.3	1.36	1.36	-0.62
1,359.0	12.70	267.10	1,354.1	0.6	-70.0	69.9	2.67	2.44	5.37
1,441.0	13.80	266.70	1,434.0	-0.4	-88.8	88.7	1.35	1.34	-0.49
1,522.0	15.30	268.30	1,512.4	-1.3	-109.1	109.1	1.92	1.85	1.98
1,604.0	15.20	263.70	1,591.5	-2.8	-130.6	130.6	1.48	-0.12	-5.61
1,686.0	14.90	265.70	1,670.7	-4.7	-151.8	151.9	0.73	-0.37	2.44
1,767.0	15.30	265.50	1,748.9	-6.3	-172.8	172.9	0.50	0.49	-0.25
1,849.0	15.40	263.40	1,827.9	-8.4	-194.4	194.6	0.69	0.12	-2.56
1,930.0	15.00	262.70	1,906.1	-11.0	-215.5	215.8	0.54	-0.49	-0.86
2,012.0	15.60	264.60	1,985.2	-13.4	-237.0	237.3	0.95	0.73	2.32
2,094.0	14.40	265.00	2,064.4	-15.3	-258.2	258.5	1.47	-1.46	0.49
2,175.0	15.70	271.30	2,142.6	-16.0	-279.1	279.5	2.58	1.60	7.78
2,257.0	15.70	270.60	2,221.6	-15.6	-301.3	301.7	0.23	0.00	-0.85
2,339.0	15.40	269.90	2,300.6	-15.5	-323.3	323.7	0.43	-0.37	-0.85
2,420.0	14.90	271.50	2,378.8	-15.2	-344.5	344.8	0.80	-0.62	1.98
2,502.0	16.30	264.60	2,457.7	-16.0	-366.5	366.8	2.83	1.71	-8.41
2,584.0	16.40	267.20	2,536.4	-17.7	-389.5	389.9	0.90	0.12	3.17
2,665.0	16.40	266.00	2,614.1	-19.0	-412.3	412.7	0.42	0.00	-1.48
2,747.0	18.50	269.20	2,692.4	-20.0	-436.9	437.3	2.81	2.56	3.90
2,828.0	18.40	268.50	2,769.2	-20.5	-462.5	463.0	0.30	-0.12	-0.86
2,910.0	18.30	267.80	2,847.0	-21.4	-488.3	488.8	0.30	-0.12	-0.85
2,992.0	18.00	268.30	2,924.9	-22.3	-513.8	514.3	0.41	-0.37	0.61
3,073.0	15.40	265.80	3,002.5	-23.4	-537.1	537.6	3.33	-3.21	-3.09
3,155.0	16.70	269.60	3,081.3	-24.3	-559.7	560.2	2.04	1.59	4.63
3,237.0	17.00	270.10	3,159.8	-24.4	-583.5	584.0	0.41	0.37	0.61
3,318.0	16.10	268.10	3,237.4	-24.7	-606.6	607.1	1.31	-1.11	-2.47
3,400.0	15.70	267.40	3,316.3	-25.6	-629.0	629.5	0.54	-0.49	-0.85
3,482.0	14.00	266.20	3,395.6	-26.7	-650.0	650.5	2.11	-2.07	-1.46
3,563.0	14.40	265.10	3,474.1	-28.3	-669.8	670.4	0.60	0.49	-1.36
3,645.0	14.70	273.00	3,553.5	-28.6	-690.4	690.9	2.45	0.37	9.63
3,727.0	15.10	274.30	3,632.7	-27.2	-711.4	711.9	0.64	0.49	1.59
3,808.0	16.30	267.90	3,710.7	-26.9	-733.3	733.8	2.60	1.48	-7.90
3,890.0	16.50	268.10	3,789.4	-27.7	-756.4	756.9	0.25	0.24	0.24
3,971.0	17.90	268.70	3,866.7	-28.3	-780.4	780.9	1.74	1.73	0.74
4,053.0	18.10	268.30	3,944.7	-29.0	-805.7	806.2	0.29	0.24	-0.49
4,135.0	16.50	267.70	4,023.0	-29.8	-830.1	830.6	1.96	-1.95	-0.73
4,216.0	15.50	268.80	4,100.9	-30.5	-852.4	852.9	1.29	-1.23	1.36
4,298.0	14.20	267.40	4,180.1	-31.2	-873.4	873.9	1.64	-1.59	-1.71
4,380.0	14.60	268.50	4,259.6	-31.9	-893.7	894.3	0.59	0.49	1.34
4,461.0	13.60	267.40	4,338.1	-32.6	-913.5	914.1	1.28	-1.23	-1.36
4,543.0	13.40	269.40	4,417.8	-33.2	-932.6	933.2	0.62	-0.24	2.44
4,625.0	11.90	269.00	4,497.9	-33.4	-950.6	951.1	1.83	-1.83	-0.49
4,706.0	10.60	263.90	4,577.3	-34.4	-966.3	966.9	2.02	-1.60	-6.30
4,788.0	9.30	260.90	4,658.1	-36.2	-980.4	981.0	1.71	-1.59	-3.66
4,869.0	8.10	259.70	4,738.1	-38.3	-992.4	993.2	1.50	-1.48	-1.48
4,951.0	6.20	260.60	4,819.5	-40.0	-1,002.5	1,003.3	2.32	-2.32	1.10
5,033.0	4.40	266.70	4,901.1	-40.9	-1,010.0	1,010.8	2.30	-2.20	7.44
5,114.0	4.20	265.10	4,981.9	-41.4	-1,016.1	1,016.9	0.29	-0.25	-1.98
5,196.0	4.00	264.80	5,063.7	-41.9	-1,021.9	1,022.7	0.25	-0.24	-0.37
5,278.0	3.80	266.90	5,145.5	-42.3	-1,027.5	1,028.3	0.30	-0.24	2.56
5,332.2	3.30	277.44	5,199.6	-42.2	-1,030.8	1,031.6	1.52	-0.93	19.44

TARGET BHL 2565'FNL, 1320'FWL

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Timmerman G13-20D
Project:	SEC.13-T4N-R65W	TVD Reference:	WELL @ 4788.0ft (Original Well Elev)
Site:	Timmerman G13-20D Pad Sec.13-T4N-R65W	MD Reference:	WELL @ 4788.0ft (Original Well Elev)
Well:	Timmerman G13-20D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,359.0	3.10	283.80	5,226.4	-41.9	-1,032.3	1,033.1	1.52	-0.74	23.74	
5,441.0	2.20	273.40	5,308.3	-41.3	-1,036.0	1,036.8	1.24	-1.10	-12.68	
5,523.0	1.70	192.90	5,390.2	-42.4	-1,037.8	1,038.7	3.11	-0.61	-98.17	
5,604.0	0.70	103.60	5,471.2	-43.7	-1,037.6	1,038.5	2.26	-1.23	-110.25	
5,686.0	0.80	136.60	5,553.2	-44.2	-1,036.7	1,037.7	0.53	0.12	40.24	
5,768.0	1.20	163.90	5,635.2	-45.4	-1,036.1	1,037.1	0.75	0.49	33.29	
5,849.0	1.20	151.20	5,716.2	-47.0	-1,035.5	1,036.5	0.33	0.00	-15.68	
5,931.0	0.80	126.80	5,798.2	-48.1	-1,034.6	1,035.6	0.70	-0.49	-29.76	
6,012.0	1.40	129.80	5,879.2	-49.1	-1,033.4	1,034.5	0.74	0.74	3.70	
6,094.0	1.70	125.40	5,961.1	-50.4	-1,031.6	1,032.8	0.39	0.37	-5.37	
6,176.0	1.60	132.40	6,043.1	-51.9	-1,029.8	1,031.0	0.27	-0.12	8.54	
6,257.0	1.80	126.80	6,124.1	-53.4	-1,027.9	1,029.2	0.32	0.25	-6.91	
6,339.0	2.00	119.90	6,206.0	-54.9	-1,025.7	1,027.0	0.37	0.24	-8.41	
6,421.0	2.00	121.30	6,288.0	-56.4	-1,023.2	1,024.5	0.06	0.00	1.71	
6,502.0	1.90	123.10	6,368.9	-57.8	-1,020.9	1,022.3	0.14	-0.12	2.22	
6,584.0	2.00	124.00	6,450.9	-59.4	-1,018.5	1,020.0	0.13	0.12	1.10	
6,666.0	2.20	119.80	6,532.8	-60.9	-1,016.0	1,017.5	0.31	0.24	-5.12	
6,747.0	2.10	121.30	6,613.8	-62.5	-1,013.4	1,014.9	0.14	-0.12	1.85	
6,829.0	2.40	122.40	6,695.7	-64.2	-1,010.6	1,012.3	0.37	0.37	1.34	
6,900.1	2.49	126.72	6,766.7	-65.9	-1,008.1	1,009.8	0.29	0.12	6.08	
TARGET CIRCLE 2565'FNL, 1320'FWL										
6,910.0	2.50	127.30	6,776.6	-66.2	-1,007.8	1,009.5	0.29	0.13	5.83	
6,992.0	2.50	131.50	6,858.5	-68.4	-1,005.0	1,006.8	0.22	0.00	5.12	
7,074.0	1.80	148.90	6,940.5	-70.7	-1,003.0	1,004.9	1.16	-0.85	21.22	
7,155.0	1.80	146.00	7,021.4	-72.9	-1,001.7	1,003.6	0.11	0.00	-3.58	
7,237.0	1.40	161.80	7,103.4	-74.9	-1,000.6	1,002.7	0.72	-0.49	19.27	
7,319.0	1.90	154.00	7,185.4	-77.1	-999.7	1,001.8	0.67	0.61	-9.51	
7,370.0	1.70	159.50	7,236.4	-78.5	-999.1	1,001.2	0.52	-0.39	10.78	
HARDLINE 78'S OF BHL										
7,421.0	1.60	153.20	7,287.3	-79.9	-998.5	1,000.7	0.41	-0.20	-12.35	

Checked By: _____	Approved By: _____	Date: _____
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